

SMARTPHONES

INTRODUCTION

Today even cheap, pre-pay mobile phones can send and receive emails and access the web. The browsers on these phones tend to make a mess of complicated pages, though, and most can't read email attachments. If you want to work or use the web on the move, you need a smartphone.

Smartphones can display almost any webpage that a PC can. They have powerful email clients, and most can view or even edit Word and Excel documents. Some have built-in QWERTY keyboards, and others have easy touch-screen controls. What's more, if your smartphone lacks a feature you need, you can install extra software to compensate.

This month we've tested 12 smartphones, from large models with touch screens to powerful pocket-size handsets. Whatever you need to do, we'll help you keep in touch.

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Smartphones let you surf the web, send email, access files and more on a device barely bigger than a standard mobile. Whatever you need a phone to do, these 12 devices will help you get smart

CALL CENTRE

Choosing a... Smartphone

One great thing about buying a smartphone is that you can add any extra features you want by installing software. Unfortunately, some things can't be added retrospectively. If you want a touch screen and 3G support, for example, you must buy a phone with them built-in. It's also important to consider which operating system you want, as this dictates which third-party software you can install.

OPERATING THEATRE

Most smartphones use one of three operating systems: Windows Mobile, Palm or Symbian. Confusingly, Windows Mobile and Symbian are available in different versions. Orange's SPV C600, O2's XDA Graphite and T-Mobile's MDA Mail all run the compact smartphone edition of Windows Mobile 5, which is operated with a directional keypad. HP's iPAQ rw6815 and T-Mobile's MDA Vario II run the standard Windows Mobile 5, which you can operate with a touch screen and stylus.

Nokia's compact smartphones run the Series 60 3rd Edition version of the Symbian operating system, which is controlled with a keypad. Sony Ericsson's M600i and P990i use Symbian 9.1 UIQ, which supports a touch screen and stylus. The Treo 680 uses Palm OS 5.4.9, which is also a touch-screen operating system.

Like a PC's mouse, a touch screen and stylus make it easier to operate the phone's interface and use the web. Touch-screen phones also have handwriting recognition software, so you can write on the screen and the phone will convert your writing into text. They also have onscreen virtual keyboards. These features make text entry quicker than it is using a numeric keypad, but if you're serious about messaging you'll want a QWERTY keyboard, as found on four of the phones in this test.

YOU'VE GOT MAIL

All the smartphones in the group have integrated email clients, so they can connect to a POP3 or IMAP4 email server to receive mail and an SMTP server to send it. They also have varying degrees of support for Microsoft Office documents. All except Orange's SPV C600 can view Word and Excel documents. Some can also display PowerPoint and PDF files. If you also need to create or modify Word or Excel files on the move, look for a phone with Word and Excel editing software. Alternatively, you can add Office document support to Windows Mobile phones by buying the ClearVue Document Suite from www.westtek.com.

All smartphones can connect to the internet, but the speed at which they connect varies. GPRS is the



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slowest type of connection and downloads data at around the speed of a dial-up modem. This is fine for plain-text emails, but if you deal with large attachments or regularly browse the web, you'll want something faster. A 3G connection runs at around two-thirds the speed of a home broadband connection. You pay for your internet use by the megabyte, but most networks offer discounts if you buy it in bundles with your mobile phone contract. A few smartphones have integrated WiFi, so you can surf for less when you're in range of a suitable wireless hotspot.

One of the advantages of a smartphone is having a powerful web browser. Smartphones can display normal webpages rather than the simplified pages to which most phones are limited. As mobile phone displays have a lower resolution than PC screens, smartphone browsers format webpages to fit the screen to save you scrolling horizontally as well as vertically.

IN SYNC

All the smartphones in the Labs will synchronise your contacts and calendar with Microsoft Outlook on your PC, so when you edit a contact or add an appointment on your phone or PC, the information on your handset is automatically updated. Each smartphone includes a USB data cable and all the necessary connection software.

Smartphones can play many types of media file, and all the phones in the group can play

MP4 video files. Every phone on test can also play MP3 audio files, but only those that use the Windows Mobile operating system will play Microsoft's WMA audio format. The Windows Mobile phones and Nokia's N73 come with stereo headphones, but Palm's Treo 680 and the other Nokia smartphones include only mono hands-free headsets.

All but two of the smartphones here have built-in cameras. These range from the low-resolution 0.3-megapixel camera in Palm's Treo 680 to the Nokia N73's 3.2-megapixel sensor,

which produces images of a quality to rival those from a digital camera. The phones have varying amounts of storage space, from the SPV C600's 17MB to the huge 116MB in HP's iPAQ rw6815. Adding more storage is easy, as all the phones have slots for various types of memory card.

Most of the phones in the Labs are available without a SIM card, so you can add your own and use them on any network. If you want to save money, though, you can buy them at a significant discount with a mobile phone contract. We quote both prices where possible.

How we test Smartphones

Smartphone manufacturers provide two battery life figures for each handset. Talk time refers to how long a phone's battery lasts when it's continuously used to make calls, while standby time is how long a phone lasts when switched on but doing nothing. In everyday use, a smartphone will do a mix of these things, as well as sending messages and browsing the internet. To find out how long a phone's battery will last when it's in use but not making phone calls, we test how long each phone can repeatedly play an MP3 file. Some gave up after eight hours, while others were still playing more than 24 hours later.

We also make sure each phone can cope with everyday and smartphone-specific tasks. We find out how easy it is to get each phone online using a GPRS or 3G data connection and, when possible, a wireless network. We then load several image-heavy webpages to see how well the integrated web browser displays them. If the phone has an integrated camera or comes with stereo headphones, we take several test photographs and play MP3 files to test its image and audio quality. Finally, we make several phone calls to check the sound quality during conversations.

NOKIA E50

★★★★★

Free on £25 contract, £159 SIM-free

Nokia's E50 isn't brimming with features, but it's small and looks good. It's the slimmest phone in this round-up and feels very well made. The metal screen surround and battery cover feel especially strong. The E50 has the second-best numeric keypad in the group. The keys are raised in the centre so it's easy to type messages, but the delete button is small and close to the disconnect key, so you can find yourself going back to the home screen when you just wanted to delete a character.

The E50 is also the narrowest phone in the group, so its screen is much smaller than those on the other compact smartphones. It has the same 240x320-pixel resolution as Nokia's E65 and N73 and Orange's SPV C600, however. There's plenty of room to display webpages, but text can be too small. The E50 has no wireless networking or 3G data connection, so you're stuck with GPRS for internet use. Like the other smartphones here, the E50 supports POP3 and IMAP email, but unlike Nokia's E60 the E50 includes software to view, rather than edit, Word, Excel and PowerPoint files.

Like all the Nokia phones here, the E50 has excellent call quality. Its 13½-hour battery life isn't a patch on the SPV C600's, but it's better than those of Nokia's other compact phones.

Nokia's E50 is a good buy if you want a no-frills smartphone for email and occasional web use, and it's good value SIM-free. If you're getting a mobile phone contract and need a phone for business, however, the more powerful E60 is a better buy.



SUMMARY

- ✓ Great keypad
- ✓ Good value
- ✗ No 3G

COMPACT SMARTPHONE GSM 850/900/1,800/1,900, GPRS, EDGE data, 240x320-pixel main display, 1.3MP camera, 65MB internal memory, USB, Bluetooth, IR connectivity
PART CODE E50
SUPPLIER www.t-mobile.co.uk,
www.o2.co.uk
DETAILS www.nokia.co.uk

NOKIA E60

★★★★★

Free on £25 contract, £235 SIM-free

The chunky E60 is designed for business users. It doesn't have a camera, but it does include wireless networking and good support for email attachments.

The E60 is the longest and thickest of the compact smartphones, and the extra space is mainly used for its enormous keypad. The buttons are large and widely spaced, so it's easy to type quickly. Text is clear and webpages look fantastic on the 352x416-pixel screen.

The E60 supports 3G data and wireless networking, so you can browse the web or check your email at broadband speeds. Connecting to a wireless network isn't as easy as it is on Nokia's E65, as there is no short cut on the home page. This forces you to delve into the settings menu. Once you're connected, browsing the web on the high-resolution screen is a pleasure. The browser displays webpages in their original format, and instead of scrolling through links you navigate with a cursor. This makes selecting links less haphazard than is usual with smartphones.

The E60 has comprehensive support for Microsoft Office files and is the only compact smartphone in the group that can edit as well as view Word, Excel and Powerpoint documents. There's no PDF viewer, though, and battery life is poor. It ran for just 10 hours and 37 minutes.

With a large keypad, wireless networking and excellent document support, the E60 is a powerful handset. It's expensive SIM-free but good value on contract, so if you don't mind recharging regularly it's the best compact phone for business users.



SUMMARY

- ✓ Great keypad
- ✓ Impressive screen
- ✗ Poor battery life

COMPACT SMARTPHONE GSM 900/1,800/1,900 3G 2100, GPRS, EDGE data, 352x416-pixel main display, no camera, 65MB internal memory, USB, Bluetooth, IR, 802.11b/g connectivity
PART CODE E60
SUPPLIER www.expansys.com
DETAILS www.nokia.co.uk

NOKIA E65

★★★★★

Free on £25 contract, £290 SIM-free



Nokia's E65 is the most stylish compact smartphone in the group. It has a large screen and a keypad that slides out.

The slide action is smooth and the main keypad is excellent for such a small phone. You can operate most of the phone's functions without opening it, as the external keypad has short cuts to contacts and messages as well as answer and disconnect keys. The textured back makes the phone comfortable to hold, but the soft keys and answer and end buttons are too small to be easy to use.

The screen is slightly smaller than that of the N73, but it's clear and bright and its 240x320-pixel resolution leaves lots of room for webpages. It can use 3G data and WiFi, and setting up a wireless connection is easy thanks to a wireless wizard on the home page. The E65 has the same powerful web browser as the E50, E60 and N73, and can view Word, Excel and PowerPoint documents.

The E65 has a 2-megapixel camera, but unlike the N73 it has no autofocus or flash. Images have good contrast and colour saturation but appear blurry. The battery ran for 11 hours and 38 minutes in our test, so it will need recharging regularly.

The E65 is desirable and great value on contract. Nokia's N73 has a better camera, but the E65's size and easy wireless networking make it the best compact internet smartphone.



SUMMARY

- ✓ Great keypad; compact
- ✓ Easy wireless networking
- ✗ Poor battery life

COMPACT SMARTPHONE GSM 850/900/1,800/1,900 3G 2,100, GPRS, EDGE data, 240x320-pixel main display, 2MP camera, 52MB internal memory, USB, Bluetooth, IR, 802.11b/g connectivity
PART CODE E65
SUPPLIER www.three.co.uk,
www.o2.co.uk
DETAILS www.nokia.co.uk

NOKIA N73 Music Edition

★★★★★

Free on £25 contract, £295 SIM-free

This Music Edition is similar to the standard Nokia N73, but with an improved music player application and better headphones. It has a large screen, but this leaves little room for the keypad. The joystick and soft keys are a reasonable size and easy to use, but the numeric keys are small and tightly spaced, so you have to type with your thumbnail.

Unlike Sony Ericsson's Walkman phones, the N73 doesn't come with an application to convert and transfer music. Instead, you use Windows Media Player to synchronise music to the phone. The handset comes without a memory card, so you'll need to buy a miniSD card to store songs. The music player itself is far better than Nokia's standard Series 60 version. Music can be chosen by artist, album and genre, and the current song appears on the home screen. The headphones have playback controls on the cable and sound good, but you can plug any pair of headphones into the supplied headphone adaptor.

The N73's autofocus camera is superb. It has an LED flash and works well in low light, while daylight shots rival those from a dedicated digital camera. Photos are in focus and have accurate colours and contrast. The battery isn't great, though, and ran for just over 13 hours in our test.

Nokia's N73 has a fiddly keypad and is pricy, but it's a great music smartphone with an excellent camera. If you don't need WiFi and want music on the move, it's a good buy.



SUMMARY

- ✓ Good music player
- ✓ Superb camera
- ✗ Fiddly keypad

COMPACT SMARTPHONE GSM 850/900/1,800/1,900 3G 2,100, GPRS, EDGE, 3G data, 240x320-pixel main display, 3.2MP camera, 46MB internal memory, USB, Bluetooth, IR connectivity
PART CODE N73-1
SUPPLIER www.mobiles.co.uk
DETAILS www.nokia.co.uk

O₂ XDA Graphite

★★★★

Free on £25 contract

Like Orange's SPV C600, O₂'s XDA Graphite is a compact smartphone based on the Windows Mobile 5 operating system. It isn't particularly attractive. The front looks OK, but from the back its hard plastic edges are unappealing. The short cut and soft keys and the joystick have a solid action and are easy to use, but the numeric keypad isn't great. The keys are large and evenly spaced, but they feel wobbly and creaky.

The XDA Graphite is more powerful than the SPV C600. It has a 2-megapixel camera, wireless networking and 3G. Sadly, the camera is poor and produced washed-out, indistinct images. Wireless networking is also a disaster. Setting up a connection is difficult, and even when we'd configured several pages of confusing settings, the phone refused to connect to any of our test networks and wouldn't tell us why.

The compact smartphone edition of Windows Mobile 5 lacks support for Microsoft Office documents, but the XDA Graphite comes with third-party software for viewing Word, Excel and PowerPoint documents.

The supplied stereo headphones are uncomfortable but sound good.

We were impressed by the Graphite's battery, which lasted for nearly 20 hours in our MP3 playback test. The phone's software cuts out background noise when you make a call, but also makes voices sound unnatural.

Overall, the Graphite's battery life is impressive, but the poor camera and terrible wireless networking are good reasons to look elsewhere.

Nokia's E65 is a better buy.



SUMMARY

- ✓ Great battery life
- ✗ Fiddly wireless networking
- ✗ Poor camera

COMPACT SMARTPHONE GSM 900/1,800/1,900 3G 2100, GPRS, 3G data, 240x320-pixel main display, 2MP camera, 59MB internal memory, USB, Bluetooth, 802.11b/g connectivity
PART CODE XDA Graphite
SUPPLIER www.o2.co.uk
DETAILS www.o2.co.uk

ORANGE SPV C600

★★★★

Free on £25 contract

Orange's SPV C600 is one of only two compact Windows Mobile 5 phones in the group. Its design is impressively unfussy. The simple keypad has short cuts to your contacts, the Start menu and the home screen, as well as call answer and end buttons, so you're never far from the phone's main functions. The number keys are large and well spaced, so entering numbers or text is easy. The screen is similar in size to that of the Nokia E50 and has the same resolution of 240x320 pixels. Text is sharp and the Windows Mobile operating system runs smoothly.

Like Nokia's E50, the C600 has no 3G or wireless networking, so you're limited to a slower GPRS connection for internet use. The C600's Pocket Outlook email client is easy to use, but it's the only phone in the group with no utilities for viewing Microsoft Office documents. Its Pocket Internet Explorer web browser can reformat webpages to fit the screen or display them in their original format. This runs very slowly, taking a while to lay out complicated pages and scrolling around them slowly.

The C600 comes with a reasonably powerful Media Player application, but its stereo headphones are quiet and uncomfortable. The 1.3-megapixel camera is also poor, producing over-exposed, blurry images. Call quality is good, however, and the battery lasted nearly 27 hours in our test.

Orange's SPV C600 has an excellent battery and a good keypad, but it's beginning to show its age. With no 3G or wireless and a slow web browser, it's not a good choice.



SUMMARY

- ✓ Superb battery; good keyboard
- ✗ No 3G
- ✗ Can't read office documents

COMPACT SMARTPHONE GSM 850/900/1,800/1,900, GPRS, EDGE data, 240x320-pixel main display, 1.3MP camera, 17MB internal memory, USB, Bluetooth, IR connectivity
PART CODE C600
SUPPLIER www.orange.co.uk
DETAILS www.orange.co.uk

HP iPAQ rw6815 Personal Messenger

★★★★

£130 on £25 contract, £316 SIM-free

HP's iPAQ rw6815 may be a 'Messenger' but, unlike Sony Ericsson's P990i, T-Mobile's Vario II and Palm's Treo 680, it lacks a QWERTY keypad. It's chunky and almost as thick as the Vario II. Its silver plastic looks good and feels tough, but the shiny back can get slippery during long phone calls. You can make calls by browsing the phone book using the direction keys and short cut buttons, but with no keypad you have to enter numbers and text with the stylus. You can input text through an onscreen keyboard or use handwriting recognition.

It's easy to connect to a wireless network. Once WiFi is enabled, the iPAQ displays all the networks in range. To connect, simply click the network and enter a key if necessary. We had less luck with setting up a mobile data connection. The iPAQ read the GPRS settings from the SIM card but wouldn't use them to connect to the internet, so we had to enter them manually. Pocket Internet Explorer doesn't display pages as accurately as the Symbian browser on the M600i, but it runs fairly smoothly.

The rw6815 has an excellent 2-megapixel camera. Images were in focus with good contrast. Call quality is the best of the full-size models, but battery life is poor. This is a well-made smartphone with impressive specifications, but it lacks 3G support. T-Mobile's Vario II is better.



SUMMARY

- ✓ Easy wireless setup
- ✓ Excellent camera
- ✗ Expensive; no 3G support

FULL-SIZE SMARTPHONE GSM 900/1,800/1,900, GPRS, EDGE data, 240x320-pixel main display, 2MP camera, 116MB internal memory, USB, Bluetooth, IR, 802.11b/g connectivity
PART CODE FA777AT
SUPPLIER www.expansys.com
DETAILS www.hp.co.uk

PALM Treo 680

★★★★

£30 on £25 contract, £260 SIM-free

The Treo 680 is the only smartphone available that runs the Palm operating system. With a high-quality plastic case it feels as if it would last forever. The design is neat, and the Palm operating system has been customised for easier use without a stylus. A short cut button launches the phone application. This is operated with the directional keypad and gives easy access to the onscreen number pad and common applications, such as messaging and contacts. Another short cut takes you to the Palm home screen, which is better suited to the stylus. The 680's QWERTY keypad is easier to use than those on the MDA Mail and Sony Ericsson P990i.

There's no 3G support, so you'll need to use GPRS to get online, but this is easier to set up than on the Windows Mobile phones. The Treo gets its settings from the SIM card and we had no problem connecting to the internet. The built-in Blazer web browser runs quickly, but makes a mess of webpage styles and formatting.

Despite its compact size, the Treo 680 is one of the heaviest phones in the group. Call quality is impressive, with little background noise and natural-sounding voices. The main problem is the battery, which lasted just seven hours and 20 minutes, putting it at the bottom of the group.

Palm's Treo 680 is well designed and very easy to use. Its web browser is fairly primitive compared with those of the other phones in the group, though, and its battery life is poor.



SUMMARY

- ✓ Great keypad; easy to use
- ✗ Poor battery life
- ✗ No 3G

FULL-SIZE SMARTPHONE GSM 850/900/1,800/1,900, GPRS, EDGE data, 320x320-pixel main display, 0.3MP camera, 64MB internal memory, USB, Bluetooth, IR connectivity
PART CODE Treo 680
PART CODE 1049EU
SUPPLIER www.expansys.com
DETAILS www.palm.com

SONY ERICSSON M600i

★★

Free on £25 contract, £235 SIM-free

When the M600i arrived in the labs, it was unstable and ran for only a few minutes before crashing. We couldn't get the firmware update software to work at first, as the Windows software supplied with the phone lacked the necessary drivers to connect to the phone. Fortunately, Windows XP's Windows Update feature managed to find the drivers, and after installing new firmware the phone became stable.

The M600i's user interface is well designed. You can navigate menus with the stylus or a scroll wheel on the left of the phone. The keypad is unusual in that each key can be two letters depending on whether you press the left or the right side. It took us ages to get used to, and we're not sure it's any better than a full QWERTY or standard phone keypad.

The M600i has a very bright screen with vibrant colours, and the operating system's detailed graphics look great. Unfortunately, the phone is sluggish, so there's a significant delay between rolling the scroll wheel or tapping on the screen and anything happening. The web browser is very impressive. Most pages are perfectly formatted and graphics look great on the screen. Call quality is generally good, but the M600i's microphone picks up lots of background noise. The battery is astounding and ran for nearly 26 hours in our test.

The M600i's great screen and pretty interface are attractive, but the operating system is just too slow to use and the keypad is annoying. There are many better phones here.



SUMMARY

- ✓ Great screen and battery
- ✗ Slow software; bad firmware
- ✗ Bizarre keypad

FULL-SIZE SMARTPHONE GSM 900/1,800/1,900 3G 2,100, GPRS, 3G data, 240x320-pixel main display, no camera, 50MB internal memory, USB, Bluetooth, IR connectivity
PART CODE M600i
SUPPLIER www.t-mobile.co.uk,
www.vodafone.co.uk
DETAILS www.sonyericsson.com

SONY ERICSSON P990i

★★

£90 on £25 contract, £320 SIM-free

Like the M600i, Sony Ericsson's P990i runs the Symbian 9.1 UIQ operating system. The device is huge but well designed. The numeric keypad is on a flip-down panel.

When this is closed, the touch screen is disabled and the phone is set up for easy access to contacts and messaging using the directional keypad or thumbwheel. When it's open, the screen expands and more options are visible. It's a neat way to differentiate between phone and PDA modes. Opening the flip also reveals a QWERTY keypad, but typing isn't particularly easy. The keys are too small to press with your thumbs, so you have to use your thumbnail, but it's still quicker than using predictive text.

The P990i supports 3G data and wireless networking. The wireless setup wizard makes it easy to connect to a network, but the phone supports only older WEP encryption and not the newer WPA. As most wireless networks are encrypted with WPA, this could be a problem. We weren't impressed with the P990i's web browser. It's slow and struggled when rendering complicated websites in full-screen mode.

The P990i's call quality reminded us of VoIP services such as Skype. Recipients found that our voices sounded slightly robotic, but there was hardly any background noise. The P990i's impressive battery ran for over 24 hours in our test. Despite this and the phone's clever design, though, there are far better choices. The P990 is expensive on contract and its usefulness is limited by a poor web browser and the lack of WPA support.



SUMMARY

- ✓ Clever design; superb battery
- ✗ WEP encryption only
- ✗ Sluggish web browser

FULL-SIZE SMARTPHONE GSM 900/1,800/1,900 3G 2,100, GPRS, 3G data, 240x320-pixel main display, 2MP camera, 62MB internal memory, USB, Bluetooth, IR, 802.11b connectivity
PART CODE P990i
SUPPLIER www.orange.co.uk,
www.vodafone.co.uk
DETAILS www.sonyericsson.com

T-MOBILE MDA Mail

★★★★★

Free on £25 contract



The MDA Mail has a full QWERTY keyboard, but it's the only one of the larger smartphones here without a touch screen. It feels very expensive, though. It's by far the thinnest phone in the group, and its matt rubber back makes it very comfortable to hold. You control the phone using the directional keypad and soft keys to select options from the main menu. The icons are large and clear, but with only two lines of icons on the screen at a time you spend a lot of time scrolling up and down to find the one you want.

The QWERTY keys are small but well spaced, so typing is easier than it is on Sony Ericsson's P990i. We made more errors than when using Palm's Treo 680, though. Like O2's XDA Graphite, the MDA Mail comes with third-party software for viewing Word, Excel and PowerPoint documents, but it also supports PDFs. It can't edit Word or Excel documents, though.

The MDA Mail has no 3G or wireless networking, so it isn't best suited to heavy web browsing. With no stylus, you have to use the directional keypad to scroll through links on the page, and the browser is slow when displaying lots of images. Call quality is poor, and call recipients complained of static, but the battery lasted for over 21 hours in our test.

The MDA Mail is more stylish than a BlackBerry and cheaper than Palm's Treo 680. The MDA Vario II is more powerful, but the smaller Mail is easier on your wallet and your pockets.



SUMMARY

- ✓ Great keypad and battery
- ✓ Compact and stylish
- ✗ No 3G

FULL-SIZE SMARTPHONE GSM 850/900/1,800/1,900, GPRS, EDGE data, 240x320-pixel main display, 1.3MP camera, 64MB internal memory, USB, Bluetooth connectivity
PART CODE MDA Mail
SUPPLIER www.t-mobile.co.uk
DETAILS www.t-mobile.co.uk

T-MOBILE MDA Vario II

★★★★★

£170 inc VAT

The MDA Vario II is slightly larger than HP's iPAQ rw6815 and looks similar. However, slide the screen across and a QWERTY keyboard appears. The keys are four times the size of those on the Treo 680, MDA Mail and Sony Ericsson P990i. Typing is fast and comfortable, but punctuation is awkward, as the function key is crammed on the edge of the keypad.

You can control the Vario II with a stylus or directional keys. There's also a thumbwheel, which isn't great for navigating the operating system but is ideal for scrolling through webpages, mail and documents. The Vario II can edit Word and Excel documents and view PowerPoint files and PDFs.

The phone supports 3G and WiFi. A wizard makes it easy to connect by searching for available networks and asking for a network key. Pocket Internet Explorer runs smoothly, but takes a long time to load and format very large and image-heavy webpages. Setting up an email account is simple, thanks to the EmailWiz

application. This provides settings for major email providers such as GoogleMail, Yahoo! and Pipex.

The Vario II is easily the heaviest phone in the group at 176g. Call quality isn't particularly good, and some recipients complained that voices sounded distant. Using a Bluetooth headset fixed the problem.

This superb smartphone is easily the most capable of the larger devices here. It's very expensive, but if its price were to drop it would be a great buy.



SUMMARY

- ✓ Great keypad
- ✓ Easy wireless networking setup
- ✗ Very expensive

FULL-SIZE SMARTPHONE GSM 850/900/1,800/1,900 3G 2,100, GPRS, EDGE, 3G data, 240x320-pixel main display, 2MP camera, 48MB internal memory, USB, Bluetooth, IR, 802.11b/g connectivity
PART CODE Vario II
SUPPLIER www.t-mobile.co.uk
DETAILS www.t-mobile.co.uk

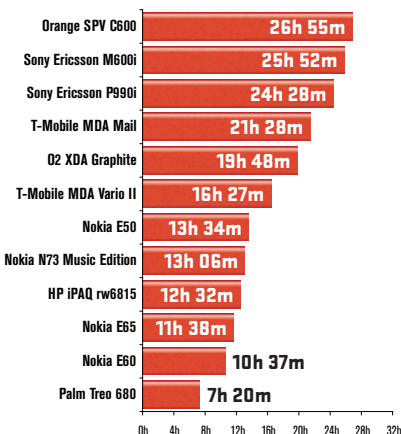
COMPACT SMARTPHONES

FULL-SIZE SMARTPHONES

MANUFACTURER	BEST BUY			BEST BUY								
	NOKIA	NOKIA	NOKIA	NOKIA	O ₂	ORANGE	HP	PALM	SONY ERICSSON	SONY ERICSSON	T-MOBILE	T-MOBILE
Model	E50	E60	E65	N73 Music Edition	XDA Graphite	SPV C600	iPAQ rw6815 Personal Messenger	Treo 680	M600i	P990i	MDA Mail	MDA Vario II
Rating	★★★★	★★★★	★★★★★	★★★★★	★★★★	★★	★★★★	★★★★	★★	★★	★★★★★	★★★★★
HARDWARE												
Main display	240x320	352x416	240x320	240x320	240x320	240x320	240x320	320x320	240x320	240x320	240x320	240x320
Second display	No	No	No	No	No	No	No	No	No	No	No	No
Camera	1.3MP	None	2MP	3.2MP	2MP	1.3MP	2MP	0.3MP	None	2MP	1.3MP	2MP
Flash	No	No	No	LED	No	No	LED	No	No	LED	No	LED
Video capture formats	3GP	N/A	MP4	MP4	MP4	MP4	H.263	3GP	N/A	3GP	MP4, H.263, Motion JPEG	MP4
Connectivity	USB, Bluetooth, IR	USB, Bluetooth, IR, 802.11b/g	USB, Bluetooth, IR, 802.11b/g	USB, Bluetooth, IR	USB, Bluetooth, 802.11b/g	USB, Bluetooth, IR	USB, Bluetooth, IR, 802.11b/g	USB, Bluetooth, IR	USB, Bluetooth, IR	USB, Bluetooth, IR, 802.11b	USB, Bluetooth	USB, Bluetooth, IR, 802.11b/g
Internal memory	65MB	65MB	52MB	46MB	59MB	17MB	116MB	64MB	50MB	62MB	64MB	48MB
Memory card slot (supplied)	MicroSD (0MB)	RS-MMC (0MB)	MicroSD (0MB)	MiniSD (0MB)	MicroSD (0MB)	MiniSD (32MB)	MiniSD (0MB)	SD (0MB)	Memory Stick Micro M2 (64MB)	Memory Stick Pro Duo (0MB)	MicroSD (0MB)	MicroSD (0MB)
Operating frequencies	GSM 850/900/1,800/1,900	GSM 900/1,800/1,900 3G 2,100	GSM 850/900/1,800/1,900 3G 2,100	GSM 850/900/1,800/1,900 3G 2,100	GSM 900/1,800/1,900 3G 2,100	GSM 850/900/1,800/1,900	GSM 900/1,800/1,900	GSM 850/900/1,800/1,900	GSM 900/1,800/1,900 3G 2,100	GSM 900/1,800/1,900 3G 2,100	GSM 850/900/1,800/1,900	GSM 850/900/1,800/1,900 3G 2,100
Wireless data	GPRS, EDGE	GPRS, EDGE	GPRS, EDGE	GPRS, EDGE, 3G	GPRS, 3G	GPRS, EDGE	GPRS, EDGE	GPRS, EDGE	GPRS, 3G	GPRS, 3G	GPRS, EDGE	GPRS, EDGE, 3G
Size (HxWxD)	113x43.5x15.5mm	115x49x17mm	105x49x16mm	110x49x19mm	110x47x18mm	108x46x19mm	190x102x58mm	112x58x21mm	105x54x15mm	114x57x25mm	111x62x12mm	113x58x22mm
Weight	104g	117g	115g	116g	105g	107g	140kg	157g	112g	150g	130g	176g
FEATURES												
Operating system	Symbian Series 60 3rd Edition	Symbian Series 60 3rd Edition	Symbian Series 60 3rd Edition	Symbian Series 60 3rd Edition	Windows Mobile 5	Windows Mobile 5	Windows Mobile 5	Palm OS 5.4.9	Symbian 9.1 UIQ	Symbian 9.1 UIQ	Windows Mobile 5	Windows Mobile 5
Microsoft Office compatibility	Word/Excel/PowerPoint/PDF viewers	Word/Excel/PowerPoint editors	Word/Excel/PowerPoint/PDF viewers	Word/Excel/PowerPoint/PDF viewers	Word/Excel/PowerPoint viewers	None	Word/Excel editors, PowerPoint viewer	Word/Excel editors, PowerPoint/PDF viewers	Word/Excel/PowerPoint/PDF viewers	Word/Excel editors, PDF viewer	Word/Excel/PowerPoint/PDF viewers	Word/Excel editors, PowerPoint/PDF viewers
Email client	POP3/IMAP	POP3/IMAP	POP3/IMAP	POP3/IMAP	POP3/IMAP	POP3/IMAP	POP3/IMAP	POP3/IMAP	POP3/IMAP	POP3/IMAP	POP3/IMAP	POP3/IMAP
Audio playback formats	MP3/AAC	MP3/AAC	MP3/AAC	MP3/AAC/WMA	MP3/WMA	MP3/AAC/WMA	MP3/AAC/WMA	MP3	MP3/AAC	MP3/AAC	MP3/AAC/WMA	MP3/AAC/WMA
Video playback formats	3GP, MP4	3GP, MP4	3GP, MP4	3GP, MP4	3GP, MP4, WMV	3GP, MP4, WMV	3GP, MP4, WMV	3GP	MP4, 3GP, Real Video	MP4, 3GP, Real Video	3GP, MP4, WMV	3GP, MP4, WMV
FM radio	No	No	No	Yes	No	No	No	No	No	Yes	No	No
Web browser	Proprietary	Proprietary	Proprietary	Proprietary	Pocket IE	Pocket IE	Pocket IE	Blazer	Proprietary	Proprietary	Pocket IE	Pocket IE
Accessories included	Mono hands-free headset, USB data cable	Mono hands-free headset, USB data cable	Mono hands-free headset, USB data cable	Bud headphones, USB data cable	Bud headphones, USB data cable	Bud headphones, USB data cable	Bud headphones, USB data cable	Mono hands-free headset, USB data cable	Bud headphones, USB data cable	Bud headphones, USB data cable, dock, strap	Bud headphones, USB data cable	Bud headphones, USB data cable, carry case
Talk time	6.8h	6.4h	6h	4.4h	5h	4h	Not stated	4h	7.5h	9h	5h	4.5h
Standby time	9 days	12 days	11 days	15 days	8 days	6 days	Not stated	12½ days	14 days	14 days	9 days	8 days
Tested battery life (MP3 playback)	13h 34m	10h 37m	11h 38m	13h 6m	19h 48m	26h 55m	12h 32m	7h 20m	25h 52m	24h 28m	21h 28m	16h 27m
BUYING INFORMATION												
Price SIM-free (inc VAT)	£159	£235	£290	£295	N/A	N/A	£316	£260	£235	£320	N/A	N/A
Price on £25/month contract (inc VAT)	Free	Free	Free	Free	Free	Free	£130	£30	Free	£90	Free	£170
SIM-free supplier	www.expansys.com	www.expansys.com	www.expansys.com	www.expansys.com	N/A	N/A	www.expansys.com	www.expansys.com	www.expansys.com	www.expansys.com	N/A	N/A
Contract/prepay supplier	www.t-mobile.co.uk, www.o2.co.uk	www.expansys.com	www.three.co.uk, www.o2.co.uk	www.mobiles.co.uk	www.o2.co.uk	www.orange.co.uk	www.expansys.com	www.expansys.com	www.t-mobile.co.uk, www.vodafone.co.uk	www.orange.co.uk, www.vodafone.co.uk	www.t-mobile.co.uk	www.t-mobile.co.uk
Handset details	www.nokia.co.uk	www.nokia.co.uk	www.nokia.co.uk	www.nokia.co.uk	www.o2.co.uk	www.orange.co.uk	www.hp.co.uk	www.palm.com	www.sony-ericsson.com	www.sony-ericsson.com	www.t-mobile.co.uk	www.t-mobile.co.uk
Part code	E50	E60	E65	N73-1	XDA Graphite	C600	FA777AT	Treo 680	M600i	P990i	MDA Mail	Vario II

BENCHMARKS

Battery life Run time



Labs verdict Smartphones

Every phone in this month's labs test can help you to browse the web and read your email on the move, but some are far more capable than others.

If you're after a device that's the same size as a normal mobile phone but with more features, either Nokia's E60 or E65 will fit the bill. The E60 is ideal for business users, as its keypad is great for messaging and you can edit Microsoft Word and Excel documents on the phone. It has no 3G connection, though, so it's not so great for accessing the internet. The E65 is small and good looking, but also very powerful. It has 3G and wireless networking, too, and a good keypad. It's our Best Buy compact smartphone.

If you've got more room in your pocket and you'd like to leave your notebook

COMPACT SMARTPHONES



NOKIA E65

★★★★★



FULL-SIZE SMARTPHONES



T-MOBILE MDA Mail

★★★★★



computer at home, we recommend T-Mobile's MDA Mail. The MDA Vario II is more powerful, but at the moment it's too expensive to recommend. The MDA Mail is great value, with a QWERTY keyboard and a long-lasting battery. It's our Best Buy. **ES**